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| Michael T. Davis  Pre-Calculus | | 1.5 Quadratic Functions  September 10-15, 2015 | |
| Name: | |

**Key Topics to Be Covered**

* Graphing quadratic functions (parabolas) in standard form
* Graphing quadratic functions (parabolas) in vertex form
* Graphing quadratic functions (parabolas) in factored form or x-intercept form
* Writing equations of quadratic functions in vertex form
* Writing equations of quadratic functions in factored form
* Converting a quadratic function from one form to another
* Determining the number of x-intercepts from a vertex form equation
* Comparing parabolas based on “a”, “h”, and “k” in vertex form
* Writing an equation of a parabola based on a graph
* Finding the zeros of a quadratic function, i.e, solving  or  or



* The coordinates of x-intercepts
* The coordinates of a y-intercept
* The minimum or maximum value of a quadratic function
* The symmetry of a parabola, the axis (line) of symmetry and its equation 
* Twin points as equidistant to the axis of symmetry
* The vertex and its coordinates
* The concavity of a parabola

**Graphing Quadratic Functions in Standard Form**



1. Graph the parabola with quadratic equation 
2. Graph the parabola with quadratic equation 
3. Graph the parabola with quadratic equation 



1. Graph the parabola with quadratic equation 
2. Graph the parabola with quadratic equation 



1. Graph the parabola with quadratic equation 



1. Graph the parabola with quadratic equation 
2. Graph the parabola with quadratic equation 

**Graphing Quadratic Functions in Vertex Form**



1. Graph the parabola with quadratic equation 
2. Graph the parabola with quadratic equation 
3. Graph the parabola with quadratic equation 



1. Graph the parabola with quadratic equation 
2. Graph the parabola with quadratic equation 
3. Graph the parabola with quadratic equation

**Graphing Quadratic Functions in Factored Form or X-intercept form** 



1. Graph the parabola with quadratic equation 



1. Graph the parabola with quadratic equation 
2. Graph the parabola with quadratic equation

**Writing Equations of Quadratic Functions in Vertex Form** 

1. Write a vertex-form equation of the parabola with vertex  and point 
2. Write a vertex-form equation of the parabola with vertex  and point 
3. Write a vertex-form equation of the parabola that is concave up and has 2 x-intercepts
4. Write a vertex-form equation of the parabola that is concave down and has 2 x-intercepts
5. Write a vertex-form equation of the parabola that is concave up and has 1 x-intercept
6. Write a vertex-form equation of the parabola that is concave down and has no x-intercepts

**Writing Equations of Quadratic Functions in Factored Form or X-intercept form**



1. Write a quadratic equation in factored form given the information. A parabola contains the points ,  & 
2. Write a quadratic equation in factored form given the information. A parabola contains the points

,  & 

1. Write a quadratic equation in factored form given the information. A parabola contains the points ,  & 
2. Convert the quadratic equation  to vertex form

**Converting a quadratic function from one form to another**

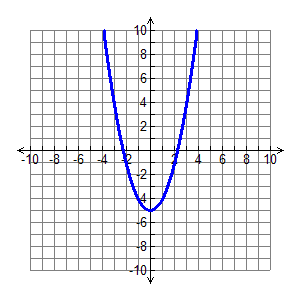
1. Convert the quadratic function  to vertex form
2. Convert the quadratic function  to vertex form
3. Convert the quadratic function  to standard form
4. Convert the quadratic function  to vertex form
5. Convert the quadratic function  to factored form
6. Convert the quadratic function  to factored form

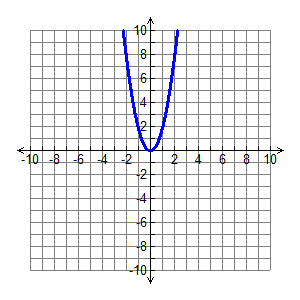
**Determining the Number of X-intercepts from a Vertex Form Equation**

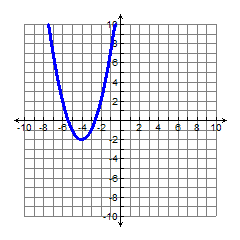
1. Without graphing, determine the number of x-intercepts of the parabola with equation 
2. Without graphing, determine the number of x-intercepts of the parabola with equation 
3. Without graphing, determine the number of x-intercepts of the parabola with equation 
4. Without graphing, determine the number of x-intercepts of the parabola with equation 

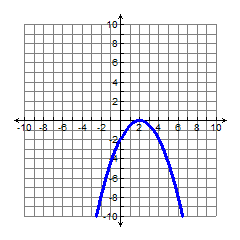
**Comparing Parabolas Based on “a”, “h” and “k” in** 

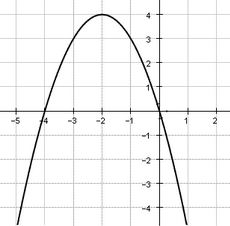
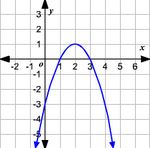
1. How does the graph of  compare to the graph of  based on a comparison of the “a” values? Vertex form is 
2. How does the graph of  compare to the graph of  based on a comparison of the “h” values? Vertex form is 
3. How does the graph of  compare to the graph of  based on a comparison of the “k” values? Vertex form is 

**Writing an Equation of a Parabola Based on a Graph**

1. For the parabola shown, write a quadratic equation in vertex form.
2. For the parabola shown, write a quadratic equation in vertex form.

1. For the parabola shown, write a quadratic equation in vertex form.



1. For the parabola shown, write a quadratic equation in vertex form.
2. For the parabola shown, write a quadratic equation in factored form.
3. For the parabola shown, write a quadratic equation in factored form.

**Finding the zeros of a quadratic function, i.e. solving**  or  or



1. Determine the zeros of the quadratic function , i.e solve 
2. Determine the zeros of the quadratic function , i.e solve 
3. Determine the zeros of the quadratic function , i.e solve 
4. Determine the zeros of the quadratic function , i.e solve 
5. Determine the zeros of the quadratic function , i.e solve 
6. Determine the zeros of the quadratic function , i.e solve 
7. Determine the zeros of the quadratic function , i.e solve 